
CIRM Graduate Student Training Grant for the Implementation of a Stem Cell Technology and Lab Management Program: Training in Stem Cell Sciences and Regenerative Medicine

Grant Award Details

CIRM Graduate Student Training Grant for the Implementation of a Stem Cell Technology and Lab Management Program: Training in Stem Cell Sciences and Regenerative Medicine

Grant Type: Bridges II

Grant Number: EDUC2-08381

Investigator:

Name:	Nitika Parmar
Institution:	Cal State Univ, Channel Island
Type:	PI

Award Value: \$3,040,396

Status: Active

Grant Application Details

Application Title: CIRM Graduate Student Training Grant for the Implementation of a Stem Cell Technology and Lab Management Program: Training in Stem Cell Sciences and Regenerative Medicine

Public Abstract:

Our campus has led the way in developing one of the most successful professional biotechnology master's program in the California State University (CSU) system, as well as an innovative Master of Science (MS) Biotechnology and MBA dual degree program. The degree structure permits students to custom-design their curriculum under an advisor's guidance, making the degree especially relevant for students employed in today's diverse biotechnology workplace. Together, these programs have a current enrollment of 121 regionally and demographically diverse students. We have successfully graduated 266 MS students; all are either employed in the biotech industry, academic sector or pursuing doctoral degrees. In the past six years, 77 students have been extensively trained in stem cell sciences within the Stem Cell Technology and Lab Management (SCTLM) emphasis as a result of a robust curriculum and partnerships with 15 different institutions providing year-long internship opportunities to our students. With a curriculum requiring students to take cutting-edge courses in the areas of molecular sciences, genomics, proteomics, quality assurance, biotech law, management and stem cell techniques, our students are assured of receiving excellent training.

For the training program in this emphasis, each year 10 MS Biotechnology students will be supported by CIRM and our campus is committed to supporting five additional interns each year for a total of 75 interns over 5 years. Because the campus has well-established collaborative relationships with local biotechnology firms and research institutions, the instructors include not only academic faculty, but also senior scientists, professionals, and experienced business managers from the industry. We are committed to continuing this innovative public-private partnership in support of the MS Biotechnology program and the stem cell emphasis in particular. Through innovative programs embedded within our curriculum important career tracks are provided for students in the STEM disciplines with the potential to become one of the most successful and sustainable programs in the CSU system; a key contributor to fulfilling a critical need for highly qualified technical and managerial personnel in stem cell research technology.

Continuation of this training program will directly make a major contribution to the stem cell efforts supported by the people of California as evidenced by the interns' interest in pursuing future research in the stem cell areas either via seeking employment in the R & D sectors of stem cell based biotech companies or via applying to a PhD program. Our interns have spoken at community events held on our campus and increased the transparency of the SCTLM emphasis and CIRM funded research. This training program has gained tremendous popularity in the past several years and future support will prove to be instrumental in recruiting the best students to augment the California scientific workforce.

Statement of Benefit to California:

Students completing the stem cell program in our MS Biotechnology degree program will be qualified to pursue careers that require knowledge of state-of-the-art scientific principles and knowledge underlying advances in biotechnology along with legal and intellectual property issues. The program is not only comprehensive, but prepares the students to be effective managers in biotechnology-related companies, agencies and organizations by giving them the knowledge and skills needed to advance in science and business roles, thus directly benefiting the state of California in a variety of professions. Our Master of Science in Biotechnology and Master of Business Administration is an innovative dual degree program that blends key components of biological sciences and business at the graduate level. Students receiving training in the stem cell sciences and completing an MBA will directly contribute to the regional and national needs of a well-educated workforce in the stem cell technology industry which is subject to heavy layers of regulation.

The proposed program will enable us to provide extensive stem cell training to our students in world-class labs, allowing them to learn sophisticated stem cell techniques under the tutelage of experts and work on projects directly contributing to the study, treatment and potential cure of diseases. In addition to didactic training, students will receive opportunities to interact with health advocacy groups, patients and medical personnel, thus enabling them experience with the non-classroom component of the program. Additionally, students will be able to enhance the visibility of stem cell research and potential therapies via a variety of community outreach events, thus bridging the gap in the transfer of knowledge from lab to California citizenry. As a result of its rigor and quality, the training program will provide a highly rewarding scientific experience to our interns.

A recent study conducted by Georgia Institute of Technology [Cell Stem Cell, 2015; 16 (2): 115 DOI: 10.1016/j.stem.2015.01.007] found that stem cell funding programs in California have contributed to an increase in the share of publications in the field produced in this state. This is a clear reflection of how a training program dedicated to students is capable of reaping big benefits. As the largest public university system, the CSU is uniquely positioned to significantly impact California's workforce of skilled stem cell scientists. California is now home to the largest publicly available stem cell bank in the world and maintenance of these cell lines requires personnel who have received adequate and comprehensive training. These cell lines are valuable in understanding and modeling human diseases as well as in the area of regenerative medicine. Students funded by the proposed training program will play a major role in enhancing California's image in the stem cell areas and educating the citizens about the promising potential of stem cells.

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